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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/936,941

12/04/2001

Tohru Ishitani

H6810,0038/P038

3002

7590

04/23/2003

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EXAMINER

TERESINSKI, JOHN

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,941

Applicant(s)

ISHITANI ET AL.

Examiner

John Teresinski

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-7 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claim Objections

Claims 4-7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on a multiple dependant claim. See MPEP § 608.01(n). Accordingly, the claims 4-7 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,844,416 to Campbell et al. in view of U.S. Patent No. 6,452,174 to Hirose et al..

Regarding claims 1 and 8, Campbell et al. disclose an ion beam apparatus and method having:

a sample chamber (column 3 lines 48-54);

a movable sample stage for holding a device sample inside the sample chamber (column 4 lines 56-61);

a focused ion beam generator for irradiating a focused ion beam on a sample held on the sample stage (column 3 lines 36-45);

a charged particle detector for detecting secondary charged particles generated from the sample by irradiation of the focused ion beam (column 6 lines 33-36);

an image display unit for displaying an observation image A in which detected intensity of the secondary charged particles is converted into luminance signals/pixels (column 7 lines 19-26); and

a plurality of conductor probe means having conductor probes for contacting with the sample and moveable conductor probes (column 3 lines 66-67, column 4 lines 1-6) wherein the conductor probe means being fixedly relatively with respect to the focused ion beam generator and sample stage (column 4 lines 6-17).

Campbell et al. does not disclose movement mechanisms for moving the conductor probes. Hirose et al. disclose an ion beam apparatus and method having movement mechanisms for moving conductor probes with in a sample chamber (column 5 lines 43-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include movement mechanisms for the conductor probes as taught by Hirose et al. into Campbell et al. for the purpose of controlling probe placement within an enclosed chamber.

Regarding claims 2 and 9, Campbell et al. do not disclose conductor probe means that can move a tip of the probe conductor in higher positioning accuracy than that of the sample stage. Hirose et al. disclose conductor probe means that can move a tip of the probe conductor in higher positioning accuracy than that of the sample stage (column 4 lines 43-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include higher positioning accuracy as taught by Hirose et al. into Campbell et al. for the purpose of providing probe movement means commensurate with the smallest feature on the test sample.

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Regarding claim 3, Campbell et al. do not disclose probe movement mechanism fixed to a sidewall of the sample chamber. Hirose et al. disclose a probe movement mechanism fixed to a sidewall of the sample chamber (Fig. 7 elements 2 and 22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include probe movement mechanism placement as taught by Hirose et al. into Campbell et al. for the purpose of providing control means in close proximity to probe to minimize delay.

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for indicating allowable subject matter:

Regarding claim 10:

The primary reason for indicating allowable subject matter in claim 10 is the inclusion of the displayed position of the mark of the probe tip is moved relatively to the image to enable the position of the tip to be moved corresponding to that movement. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are further cited to show the state of the art with respect to ion beam and charged particle detection methods and devices in general:

U.S. Patent No. 6,331,712 to Sugiyama et al. disclose a focused ion beam apparatus with secondary charged particle detection.

U.S. Patent No. 4,740,698 to Tamura et al. disclose a hybrid charged particle device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (703) 305-4746.

The examiner can normally be reached on M-F 8:30 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9319 for regular communications and (703) 872 9318 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ST

JT

April 19, 2003


JAY PATIDAR
PRIMARY EXAMINER